

CLAIMS

What is claimed is:

1. An active layer comprising at least one compound having a formula selected from Formula I, Formula II, and Formula III:

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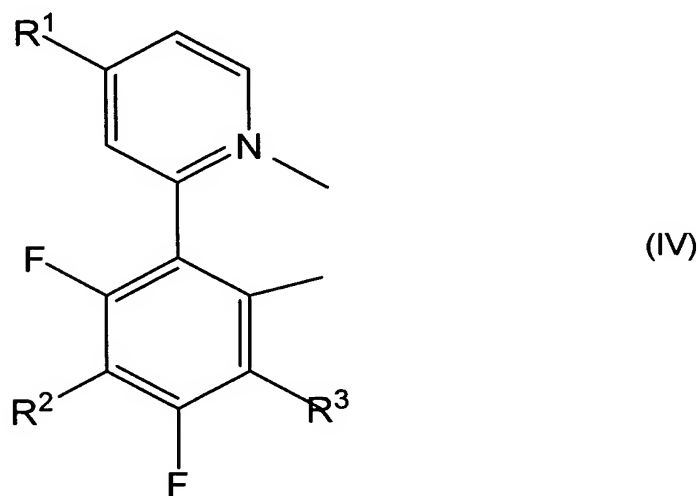


where:

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in Formulae I, II, and III:

L^1 has Formula IV:



wherein:

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$\text{R}^1 = \text{H}, \text{R}^4, \text{OR}^4, \text{N}(\text{R}^4)_2$

$\text{R}^2 = \text{H}, \text{C}_n\text{F}_{2n+1}, \text{C}_n\text{F}_{2n+1}\text{SO}_2, \text{COOR}^4, \text{CN}$

$\text{R}^3 = \text{H}, \text{C}_n\text{F}_{2n+1}, \text{C}_n\text{F}_{2n+1}\text{SO}_2, \text{COOR}^4, \text{CN},$

R^4 is the same or different at each occurrence and is H, alkyl, aryl, or adjacent R^4 groups can join together to form a 5- or 6-membered ring, and

20

n is an integer from 1 through 20;

in Formula II:

L^2 is a monoanionic bidentate ligand;

in Formula III:

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L^3 is a monoanionic monodentate ligand; and

L^4 is a nonionic monodentate ligand.

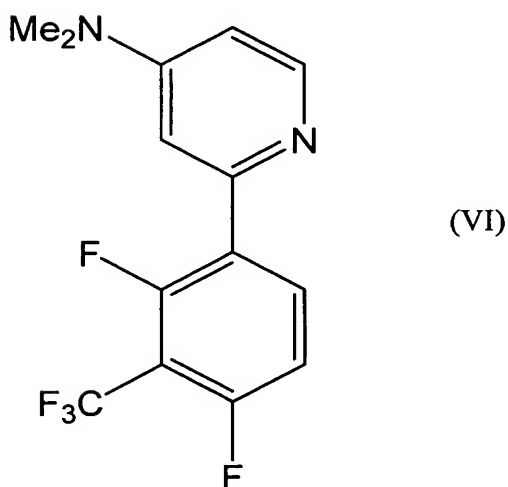
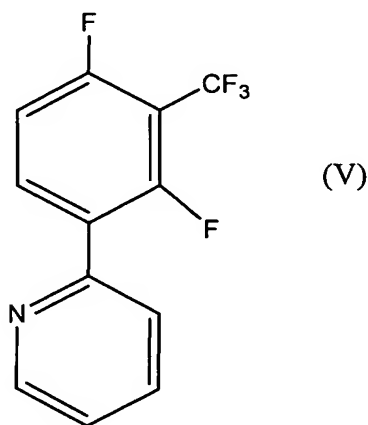
2. The active layer of Claim 1, wherein R¹² and R¹³ are independently selected from H, CF₃, C₂F₅, *n*-C₃F₇, *i*-C₃F₇, C₄F₉, CF₃SO₂, COOR¹⁴ and CN.

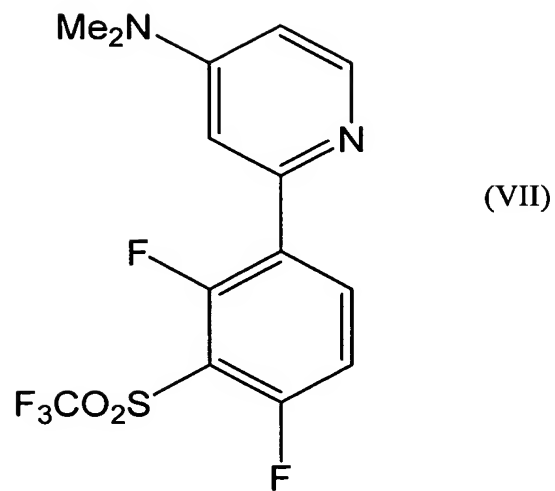
3. The active layer of Claim 1, wherein the compound has Formula I and L² is selected from a β-enolate, a phosphino alkoxide, and a ligand coordinated through a carbon atom which is part of an aromatic group.

4. The active layer of Claim 1, wherein the compound has Formula II and L³ is a hydride.

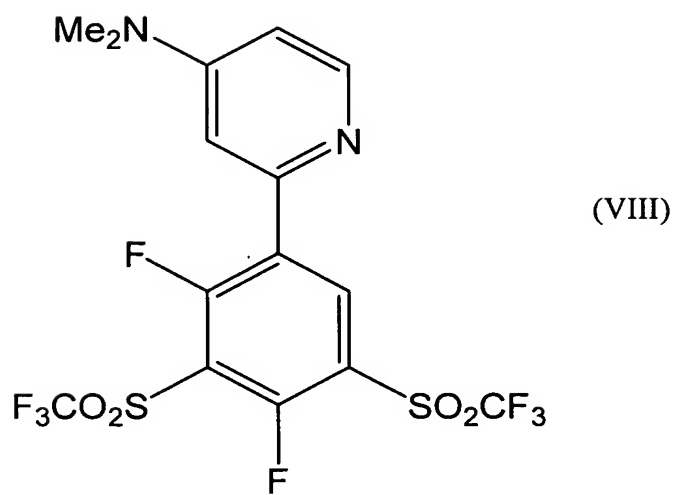
5. The active layer of Claim 1, wherein L¹ is selected from ligand 1-a through 1-y as shown in Table 5.

6. The active layer of Claim 1, wherein L¹ is selected from Formula V, Formula VI, Formula VII, Formula VIII, and Formula IX:



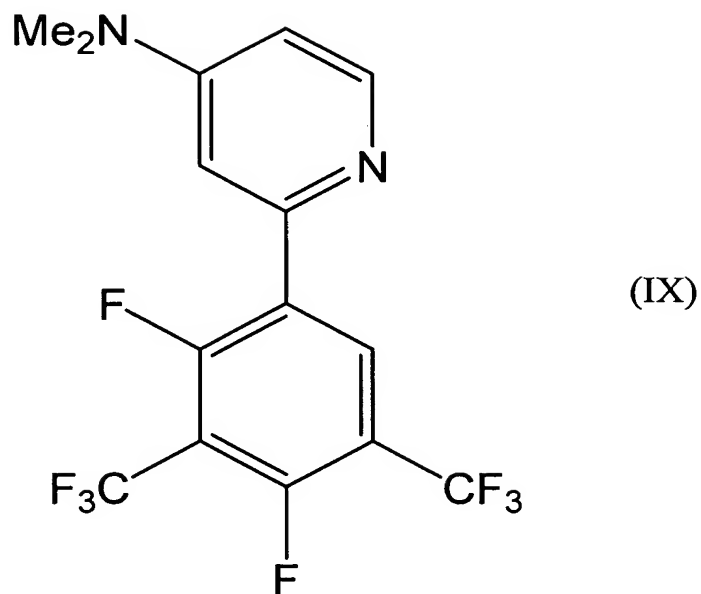


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5 7. An organic electronic device comprising at least one active layer of Claim 1.

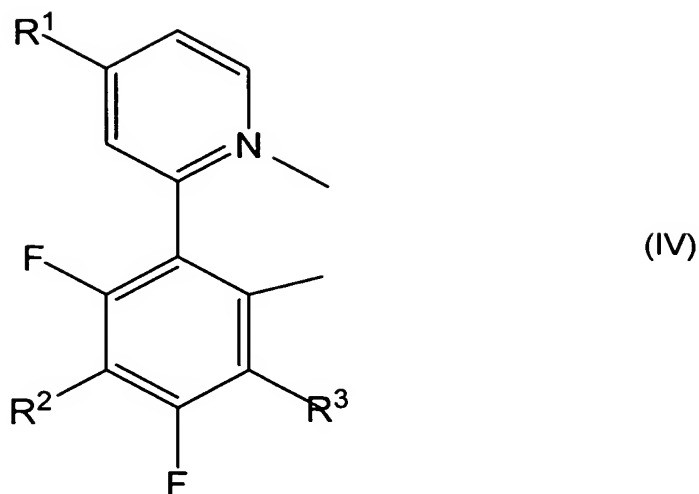
8. A compound having a formula selected from Formula I, Formula II, and Formula III:

10	$Pt(L^1)_2$	(I)
	PtL^1L^2	(II)
	$Pt L^1L^3L^4$	(III)

where:

in Formulae I, II, and III:

15 L^1 has Formula IV:



wherein:

$R^1 = \text{H}, R^4, \text{OR}^4, \text{N}(\text{R}^4)_2$

5 $R^2 = \text{H}, \text{C}_n\text{F}_{2n+1}, \text{C}_n\text{F}_{2n+1}\text{SO}_2, \text{COOR}^4, \text{CN}$

$R^3 = \text{H}, \text{C}_n\text{F}_{2n+1}, \text{C}_n\text{F}_{2n+1}\text{SO}_2, \text{COOR}^4, \text{CN},$

R^4 is the same or different at each occurrence and is H, alkyl, aryl, or adjacent R^4 groups can join together to form a 5- or 6-membered ring, and

10 n is an integer from 1 through 20;

in Formula II:

L^2 is a monoanionic bidentate ligand;

in Formula III:

L^3 is a monoanionic monodentate ligand; and

15 L^4 is a nonionic monodentate ligand.

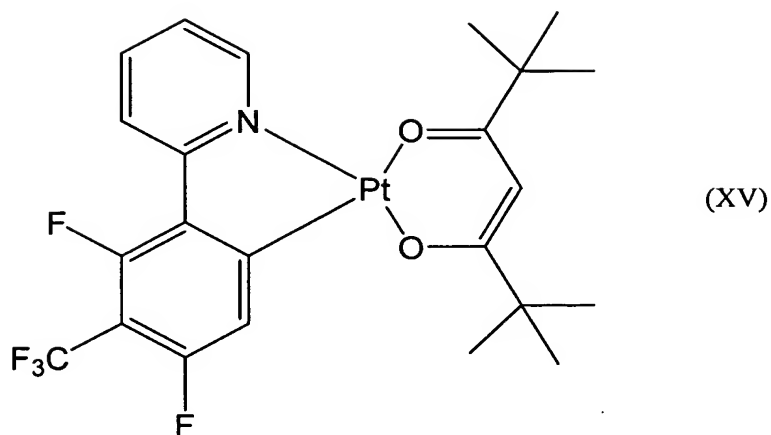
9. The compound of Claim 8, wherein L^1 is selected from ligands 1-a through 1-y, as shown in Table 1.

20 10. A compound of Claim 8, wherein R^2 and R^3 are independently selected from H, CF_3 , C_2C_5 , $n\text{-C}_3\text{F}_7$, $i\text{-C}_3\text{F}_7$, C_4C_9 , CF_3SO_2 , COOR^{14} and CN.

11. A compound of Claim 8, wherein the compound has Formula II and L^2 is selected from a β -enolate, a phosphino alkoxide, and a ligand coordinated through a carbon atom which is part of an aromatic group.

25 12. A compound of Claim 8, wherein the compound has Formula III and L^3 is a hydride.

13. A compound having Formula Formula XV:



14. An organic electronic device comprising a layer that comprises
5 the compound of Claim 8.

15. An organic electronic device comprising a layer that comprises
the compound of Claim 9.

16. An organic electronic device comprising a layer that comprises
the compound of Claim 10.

10 17. An organic electronic device comprising a layer that comprises
the compound of Claim 11.

18. An organic electronic device comprising a layer that comprises
the compound of Claim 12.

15 19. An organic electronic device comprising a layer that comprises
the compound of Claim 13.

20. An active layer of claim 1 further comprising a diluent.

21. An active layer of claim 20 wherein the diluent further comprises
a material selected from a polymer, a small molecule, and a mixture
thereof.

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